

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF RHODE ISLAND

_____)	
ALIFAX HOLDING SPA,)	
)	
Plaintiff,)	
)	
v.)	C.A. No. 14-440 WES
)	
ALCOR SCIENTIFIC INC.; and)	
FRANCESCO A. FRAPPA,)	
)	
Defendants.)	
_____)	

OPINION AND ORDER

WILLIAM E. SMITH, Chief Judge

This intellectual property odyssey came before the Court for a three-week jury trial in the spring of 2019. The jury found that the Defendants willfully misappropriated two of plaintiff Alifax Holding SpA's trade secrets in violation of Rhode Island law. The jury also found that defendant Francesco Frappa alone misappropriated a third trade secret and breached his confidential relationship with Alifax under Italian law.¹ The jury awarded Alifax \$6.5 million in unjust enrichment damages. Before the Court are the Defendants' post-trial motions, which renew their requests

¹ The jury's verdict concerning the third trade secret - "information concerning an anemia factor set forth in exhibits 19 and 34," see Jury Verdict Form Phase I: Liability, ECF No. 292 - is not the subject of the pending post-trial motions.

for judgment as a matter of law² and, in the alternative, seek a new trial or remittitur.³ See Alcor's Mot. for a New Trial, or in the Alternative, for Remittitur ("Mot. for New Trial"), ECF No. 303; Alcor's Renewed Mot. for J. As A Matter of Law ("Renewed Mot. for JMOL"), ECF No. 304.

Three sophisticated parties aided by experienced counsel and experts locked horns in this dispute for nearly half a decade. In contrast, a lay jury was asked to grasp unfamiliar technological and mathematical concepts amid a complex and shifting web of legal theories in a tiny fraction of that time. The Court has calibrated

² Frappa's renewed request for judgment as matter of law on Count III is considered in a separate order filed contemporaneously with this opinion. The Court asked for supplemental briefs regarding whether the exclusion of Alifax's theory of damages pertaining to Frappa individually necessitates a judgment in his favor on Count II. Trial Tr. vol. 11, 29:19-21, May 1, 2019. Such briefing never materialized; the parties glibly addressed the issue in their other filings. The Court concludes that the Defendants' liability on Count II is joint and several. Melvin F. Jager, 1 Trade Secrets Law § 3.42, at n.4.10 (2019) (citing cases); see also Salton, Inc. v. Phillips Domestic Appliances & Personal Care B.V., 391 F.3d 871, 877 (7th Cir. 2004); Fishkin v. Susquehanna Partners, G.P., Civil Action No. 03-3766, 2007 WL 853769, at *3 (E.D. Penn. Mar. 19, 2007). Thus, Alifax's untimely disclosure of its theory does not extinguish the claim against Frappa. As Frappa's other grounds for judgment as a matter of law were co-extensive with Alcor's, see Trial Tr., Vol. 6, 110:10-120:4, Apr. 24, 2019, the Court construes the balance of Alcor's Rule 50(b) motion as a joint motion.

³ Considering the Court's rulings on the Defendants' Rule 50(b) motion, the Court accepts Alcor's invitation to construe its Rule 59 motion as a joint request from both defendants. See Mot. for New Trial 1, n.1.

the rigor of its post-trial assessment to reflect the length and complexity of this action.

Regarding the Defendants' Rule 50(b) motion, the Court finds that Alifax failed to introduce sufficient evidence that using a clear, plastic photometer sensor ("CPS") in an ESR analyzer was a protectable trade secret under the Rhode Island Uniform Trade Secrets Act ("RIUTSA"), R.I. Gen. Laws § 6-41-1 et seq. Thus, for the reasons that follow, the jury's verdict regarding this theory of liability must be vacated and judgment must enter for the Defendants. The Defendants' Rule 50(b) motion is otherwise denied.

As for the Defendants' request under Rule 59, the Court has conducted an exhaustive review of the trial record. Important policies discourage overturning a jury's verdict, and there is no doubt that the jury in this action made a conscientious effort to find the facts and apply the law. Nevertheless, after a careful examination of evidence, the Court is left with a firm and abiding conviction that the verdict finding that the Defendants' misappropriated Alifax's secret conversion algorithm is contrary to the clear weight of the evidence. The Court is similarly persuaded that Alifax's sole damages witness exceeded the scope permitted by Federal Rule of Evidence 1006 and that a dramatic trial exhibit (a prototype black reading cell) was admitted in error, unfairly prejudicing the Defendants. These findings justify a new trial on what remains of Count II.

I. Background

The legal and technical principles that drive this dispute are complex. The story is simple.⁴ Alifax produces automated clinical instruments that are used to determine the erythrocyte sedimentation rate ("ESR") of human blood samples.⁵ Francesco Frappa, an employee of an Alifax subsidiary, departed the company and began working with Alcor, a Rhode-Island based competitor.⁶ Within a year, Alcor debuted a new instrument - the iSED - with rapid analytical capabilities comparable to Alifax devices. This thunderous litigation ensued.

Alifax has accused Alcor and Frappa of developing the iSED by pilfering its intellectual property. Alifax's claims included the following: (1) infringement of two patents under 35 U.S.C. § 271; (2) willful and malicious misappropriation of numerous trade secrets under the Rhode Island Uniform Trade Secrets Act ("RIUTSA"), R.I. Gen. Laws § 6-41-1 et seq.; (3) breach of Frappa's

⁴ Only the context for the Defendants' Rule 50 and Rule 59 motions is provided here. A more detailed chronicle of particular chapters from this dispute can be found in the Court's prior rulings. See, e.g., Alifax Holding SpA v. Alcor Sci. Inc., No. CV 14-440 WES, slip op. (D.R.I. Mar. 26, 2019); Alifax Holding SpA v. Alcor Sci. Inc., 357 F.Supp.3d 147 (D.R.I. 2019).

⁵ ESR is a common clinical test that is used to detect non-specific inflammation.

⁶ Frappa was employed by Sire Analytical S.r.l. During this litigation, Sire merged completely into Alifax. Unless otherwise noted, the Court refers herein to both entities simply as "Alifax."

confidential relationship with Alifax; and (3) copyright infringement. See generally Second Am. & Suppl. Compl., ECF No. 68; Pl.'s Identification of Misappropriated Trade Secrets, ECF No. 61-4. Alcor and Frappa have always denied these contentions. Alcor even counterclaimed, seeking declarations of patent invalidity and alleging Alifax intentionally interfered with its prospective contractual relations. Defs.' Ans. to Pl.'s Second Am. & Suppl. Compl. & First Am. Countercl. ("Ans.") ¶ 43, ECF No. 71.

The parties filed dispositive motions targeting various claims in mid-2018. In that context, the Court ruled that Italian law governed the substance of Alifax's cause of action for breach of a confidentiality relationship. Alifax Holding SpA v. Alcor Sci. Inc., 357 F. Supp. 3d 147, 152 (D.R.I. Jan. 8, 2019). The Court denied the Defendants' motion for summary judgment on the claims of patent infringement, trade secret misappropriation, copyright infringement, and patent invalidity. Alifax Holding SpA v. Alcor Sci. Inc., No. CV 14-440 WES, slip op. at 40 (D.R.I. Mar. 26, 2019). As the Court observed, a hairsbreadth stood between some of Alifax's claims and an adverse result. Id. Regardless, the Noerr-Pennington doctrine supported summary judgment for Alifax on Alcor's intentional interference counterclaim. Id.

The parties tried the remaining claims to jury over three weeks in April and May 2019. The trial was bifurcated into two phases: liability and damages. Prior to the start of trial, the

Court excluded the copyright-related opinion of Alifax's damages expert. See Alifax Holding SPA v. Alcor Sci. Inc., C.A. No. 14-440 WES, 2019 WL 1579503, *1 (D.R.I. Apr. 12, 2019). Without a theory of damages, the parties agreed that Alifax's copyright claim was "out of the case." Trial Tr. vol. 1, 3:10-16, Apr. 15, 2019. It was not tried to the jury. Five days of testimony later, Alifax expressed that it no longer wished to proceed on its patent infringement claims. Trial Tr. vol. 5, 4:7-10, Apr. 22, 2019. Without objection from any party, the Court reconsidered its March 26th ruling and granted summary judgment for Alcor on Count I of Alifax's Second Amended Complaint. Id. at 77:16-78:7. The parties also executed a covenant not to sue, which disposed of Alcor's invalidity counterclaims. Id. at 78:11-79:14. Thus, at the end of the liability phase, the jury deliberated over just two claims: misappropriation of trade secrets and breach of a confidential relationship. By that time the number of alleged trade secrets had been whittled down to four.

On April 30, 2019, the jury returned its verdict. The jury found for Alifax, concluding that Alcor and Frappa misappropriated two of Alifax's trade secrets:

1. Using a clear, plastic capillary photometer sensor ("CPS") in an automated ESR analyzer, but only through February 6, 2014; and
2. Portions of computer program source code concerning the conversion of photometric

measurements, including source code containing four specific conversion constants.

Jury Verdict Form Phase I: Liability, ECF No. 292. It also found Frappa (but not Alcor) misappropriated a trade secret comprised of "[i]nformation concerning an anemia factor . . . ". Id. The jury found that both Defendants had acted willfully and maliciously. Id. At the conclusion of damages phase, the jury awarded Alifax \$6.5 million in unjust enrichment damages attributable to Alcor's misappropriation of Alifax's source-code related trade secret.⁷ Jury Verdict Form Phase II: Damages 2, ECF 299. One dollar in nominal damages was awarded for the Defendants' misappropriation of the CPS-related trade secret.

II. Legal Standard

Granting judgment as a matter of law to overturn a jury's verdict is warranted only if no reasonable jury could have found for the non-moving party. Fed. R. Civ. P. 50; Rinsky v. Cushman & Wakefield, Inc., 918 F.3d 8, 26 (1st Cir. 2019). The Court must examine the evidence from the nonmovant's case-in-chief, draw all reasonable inferences in the non-movant's favor, and determine

⁷ The Court ruled that the jury would not be permitted to award damages based on Frappa's alleged unjust enrichment as an individual because Alifax failed to adequately disclose that theory prior to trial. Trial Tr. vol. 11, 28-29, May 1, 2019. The Court also ruled that Alifax would be held to its representation that it was only seeking nominal damages for misappropriation of the CPS-related trade secret.

whether the verdict has a sufficient evidentiary basis. Zimmerman v. Direct Fed. Credit Union, 262 F.3d 70, 75 (1st Cir. 2001); Coyante v. Puerto Rico Ports Auth., 105 F.3d 17, 22 (1st Cir. 1997) (confining Rule 50 review to "the record upon which the plaintiff rested her case . . ."). The Court "may not consider the credibility of witnesses, resolve conflicts in testimony, or evaluate the weight of the evidence." Barkan v. Dunkin' Donuts, Inc., 627 F.3d 34, 39 (1st Cir. 2010). A verdict cannot be jettisoned with caprice; the evidence must "point[] unerringly to an opposite conclusion." Zimmerman, 262 F.3d at 75. Nevertheless, claims built on conjecture, speculation, or a "mere scintilla" of evidence do not pass muster. Katz v. City Metal Co., 87 F.3d 26, 28 (1st Cir. 1996). If a district court grants a renewed motion for judgment as a matter of law, it must make a conditional ruling on whether it would grant a new trial if the judgment is later vacated. Fed. R. Civ. P. 50(c)(1); Jennings v. Jones, 499 F.3d 2, 21 (1st Cir. 2007).

A trial court has much greater discretion under Rule 59. Jennings v. Jones, 587 F.3d 430, 436 (noting that a trial court may exercise "broad legal authority" in this context). A district court may order a new trial "whenever, in its judgment, the action is required in order to prevent injustice." Id. (quotations omitted);

Ins. Co. of N. America v. Musa, 785 F.2d 370, 375 (1st Cir.1986) (stating grounds for a new trial include finding "the verdict is against the clear weight of the evidence, is based upon evidence that is false, or resulted from some trial error and amounts to a clear miscarriage of justice.") (quotation marks omitted). The Court is not bound by Rule 50's strictures. It is free to consider witnesses' credibility, independently weigh the proof, and order a new trial "even where the verdict is supported by substantial evidence." Jennings, 587 F.3d at 439 (quoting Lama v. Borrás, 16 F.3d 473, 477 (1st Cir. 1994)). The Court may also order a new trial if any legal or factual errors were sufficiently grievous "as to have rendered the trial unfair.'" Astro-Med, Inc. v. Plant, C.A. No. 06-533 ML, 2008 WL 4372727, *1 (Sept. 23, 2008), aff'd sub nom. Astro-Med, Inc. v. Nihon Kohden America, Inc., 591 F.3d 1 (1st Cir. 2009) (quoting Parker v. Town of Swansea, 310 F. Supp.2d 356, 370 (D. Mass. 2004)). Still, district courts must exercise their discretion with caution. See Jennings, 587 F.3d at 436 ("[T]rial judges do not sit as thirteenth jurors, empowered to reject any verdict with which they disagree.").

Alcor has also asked the Court to consider an alternative course: remittitur. If the court finds that jury's damages were excessive or contrary to the weight of the evidence, a district court may compel a victor to accept either a new trial on damages or a reduced award. See Conjugal P'ship Comprised by Joseph Jones

& Verneta G. Jones v. Conjugal P'ship Comprised of Arthur Pineda & Toni Pineda, 22 F.3d 391, 397 (1st Cir. 1994); see also Phelan v. Local 305, 973 F.2d 1050, 1064 (2d Cir.1992). A court-ordered abatement is justified if, when considered in the most favorable light to the prevailing party, the jury's award "exceeds any rational appraisal or estimate of the damages that could be based upon the evidence before [the jury]." E. Mountain Platform Tennis, Inc. v. Sherwin-Williams Co. Inc., 40 F.3d 492, 502 (1st Cir. 1994); see also Trainor v. HEI Hosp., LLC, 699 F.3d 19, 32 (1st Cir. 2012) (holding remittitur required when evidence was "so thin" that award was "vastly out of proportion" to maximum recovery supported by evidence). The First Circuit follows the "maximum recovery rule." Trainor, 699 F.3d at 33. Thus, any remittitur must reflect "the highest reasonable total of damages for which there is adequate evidentiary support." Marchant v. Dayton Tire & Rubber Co., 836 F.2d 695, 704 (1st Cir. 1988).

III. Discussion

A. The Clear, Plastic Capillary Photometer Sensor Trade Secret

1. Alifax Did Not Introduce Legally Sufficient Evidence to Support Its Claim That The CPS-Related Trade Secret Was Protectable Under RIUTSA.

Alcor argues that the Court should vacate the jury's liability verdict on Alifax's CPS-related trade secret claim because Alifax failed to introduce evidence showing that the first asserted trade

secret - "[u]sing a clear, plastic capillary photometer sensor ("CPS") in an automated ESR analyzer" - satisfied RIUTSA's requirements for protectability. See Renewed Mot. for JMOL 4-15. Alcor alternatively requests a new trial on this claim. See Alcor's Mot. for New Trial 4-11. The Court agrees on both scores.

RIUTSA defines a "trade secret" in broad terms. The statute protects:

[I]nformation, including a formula, pattern, compilation, program, device, method, technique, or process, that:

- (i) Derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; and
- (ii) Is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

R.I. Gen. Laws § 6-41-1(4). The Court required Alifax to disclose "with reasonable particularity" the trade secrets it alleged the Defendants misappropriated.⁸ Scheduling Order ¶ 3, ECF No. 36. This request was not busy work. It is a common-sense requirement

⁸ Such disclosure orders are commonplace in trade secret misappropriation cases. See, e.g., DeRubeis v. Witten Techs., Inc., 244 F.R.D. 676, 681 (N.D. Ga. 2007) (analyzing discovery considerations and finding "it is appropriate . . . to require [the plaintiff] to first identify with 'reasonable particularity' those trade secrets it believes to be at issue"); BioD, LLC v. Amnio Tech. LLC, No. 2:13-cv-1670-HRH, 2014 WL 3864658 (D. Ariz. Aug. 6, 2014).

that furthers the practical needs of discovery and a basic premise of misappropriation claims: a party must be able to identify its asserted trade secrets with reasonable specificity. See, e.g., IDX Sys. Corp. v. Epic Sys. Corp., 285 F.3d 581, 583 (7th Cir. 2002); Dow Chem. Canada, Inc. v. HRD Corp., 909 F. Supp. 2d 340, 346 (D. Del. 2012); Utah Med. Prods., Inc. v. Clinical Innovations Assoc., Inc., 79 F. Supp.2d 1290, 1313 (D. Utah 1999), aff'd, 251 F.3d 171 (Fed. Cir. 2000).

Like other embodiments of the Uniform Trade Secrets Act ("UTSA"), RIUTSA does not protect "general categories of information" from exploitation. Luigino's, Inc. v. Peterson, 317 F.3d 909, 912 (8th Cir. 2003); Sarkissian Mason, Inc. v. Enter. Holdings, Inc., 955 F. Supp.2d 247, 255 (S.D.N.Y. 2013), aff'd, 572 Fed. Appx. 19 (2d Cir. 2014). To show a protectable interest, a plaintiff "must assert specific allegations that it possessed information that meets the definition of trade secret under [the act] and must proffer evidence that Defendants actually received the trade secret and improperly used it." Sun Media Sys., Inc. v. KDSM, LLC, 564 F. Supp.2d 946, 965 (S.D. Iowa 2008) (interpreting language of Iowa UTSA); see also IDX Sys. Corp., 285 F.3d at 583 (affirming summary judgment for defendants on misappropriation claim because plaintiff "failed to identify with specificity the trade secrets that it accuses the defendants of misappropriating."); Imax Corp. v. Cinema Techs., Inc., 152 F.3d 1161, 1164

(9th Cir. 1998) ("A plaintiff seeking relief for misappropriation of trade secrets 'must identify the trade secrets and carry the burden of showing that they exist.'").

The uniform statute's language is the source of this principle. A fact finder cannot judge whether an alleged trade secret has "independent economic value" if its contours are not reasonably defined. See R.I. Gen. Laws § 6-41-1(4)(i). Nor could one assess whether such information is not generally known or readily ascertainable. See Dow Chem. Canada, Inc., 909 F. Supp. 2d at 346 (holding trade secret "must be particular enough as to separate the trade secret from matters of general knowledge in the trade or of special knowledge of persons skilled in the trade."); Utah Med. Prods., Inc., 79 F. Supp.2d at 1313 (concluding plaintiff "must define its claimed trade secret with the precision and particularity necessary to separate it from the general skill and knowledge possessed by [defendants]").

Alifax first identified its asserted trade secrets in May 2016. See Pl.'s Identification of Misappropriated Trade Secrets, ECF No. 61-4. It amended its disclosures twice over the ensuing ten months. See Pl.'s First Am. Identification of Misappropriated Trade Secrets, ECF No. 61-5; Pl.'s Second Am. Identification of Misappropriated Trade Secrets ("Pl.'s Second Disclosure"), ECF No. 137-27. The scope of its trade secret claims narrowed further at summary judgment. See Mem. of Law in Opp'n to Defs.' Mot. for

Partial Summary J. 13 n.2, ECF No. 167 (dropping asserted trade secrets concerning the means of creating a capillary channel in the plastic CPS or the use of screws with Teflon washers). Each and every one of Alifax's pretrial disclosures describes the material for the plastic CPS as "a single, block of clear acrylic" and defines the component as a "hard transparent block with a capillary channel inside . . . ". Pl.'s Second Disclosure ¶¶ 1-2 (emphasis added).

Based on Alcor's disclosures, the Court defined the CPS-related trade secret at the close of the liability phase as "[u]sing a clear, plastic capillary photometer sensor ("CPS") in an automated ESR analyzer, but only through February 6, 2014." See Verdict Form Phase I: Liability, ECF No. 292; Charge Conf. Tr. 7-11, Apr. 26, 2019, ECF No. 345. The Court included the term "clear" over Alifax's objection and explained its rationale. See Charge Conf. Tr. 7:18-8:17. Paragraph 1 of Alifax's disclosure described the CPS as a "transparent block." Pl.'s Second Disclosure ¶ 1. Paragraph 2 described the CPS as a component made from "a single[] block of clear acrylic." Id. ¶ 2. Thus, paragraph 2 simply specified the material (clear acrylic) for the "transparent block" referenced in paragraph 1. Charge Conf. Tr. 10.⁹ The question

⁹ Contrary to Alifax's argument, the liability phase charge conference was the first time that Alifax suggested it was asserting two separate CPS-related trade secrets. See Charge Conf. Tr. 10; see also Mem. of Law in Opp'n to Defs.' Mot. for Partial

confronting the Court is whether the evidence at trial can be rationally linked to the identified trade secret (a clear, plastic CPS).

Viewed in the light most favorable to the verdict, Alifax's trial evidence showed that it was developing a CPS that was black or made of "dark material" to increase its analyzer's reliability and reduce maintenance. Two witnesses, Giovanni Batista Duic and Dr. Paolo Galiano, testified that "La Mecca" was a project to improve Alifax's instruments by replacing the Teflon tubing with a plastic reading cell.¹⁰ Trial Tr. vol. 2, 40:7-41:6, Apr. 16, 2019; Trial Tr. vol. 6, 82:21-83:6. In 2008, Frappa corresponded with an Alifax vendor about producing "La Mecca" reading cells by using a "completely opaque . . . varnish or a thin layer of black plastic material" to create an "optical shield" around a clear reading cell. See Trial Ex. 421. This evidence comports with Frappa's account of "La Mecca" in his October 2011 technical

Summary J. 12-13 ("the use of a plastic reading cell in a capillary ESR analyzer was a trade secret") ("the use of a plastic reading cell as a component in the Alifax ESR analyzer was not generally known"). Alifax pressed that the Court's characterization of the asserted trade secret at summary judgment (which was silent as to CPS's opacity) was more accurate. But that issue was not before the Court at that time and was not ruled on in the Court's decision. The question at summary judgment was whether a genuine dispute existed about incorporating a plastic CPS into an ESR analyzer. See Alifax Holding SpA v. Alcor Sci. Inc., No. CV 14-440 WES, slip op. at 18-20 (D.R.I. Mar. 26, 2019).

¹⁰ The terms "reading cell" and CPS are synonymous.

report. See Trial Ex. 33. It describes the reading cell as a "block of dark material with a transparent area, inside, [sic] which can be traversed by the light . . . ". Id. The codename "Mecca" was itself a reference to the reading cell's dark plastic material (i.e., to the Kaaba in Mecca, Saudi Arabia). See Trial Tr. vol. 2, 41:1-8. There is no mention of a "clear" or "transparent" reading cell. Duic confirmed that Frappa's report was "accurate and complete." Id. at 108:23-25.

What Duic could not confirm was that Sire employed Frappa when the company produced both clear and black prototype reading cells. Trial Tr. vol. 2, 53:4-8. He affirmed - at most - that the prototypes in Fall 2011 were black. Id. at 53:11-12. Several days later, Alifax introduced a tangible prototype of a black reading cell introduced into its analyzers in 2014. See Trial Ex. 136. Alifax's counsel invited the jury to compare the prototype to Alcor's design drawings for a plastic CPS in his summation. See id.; Trial Tr. vol. 9, 54:10-11, Apr. 29, 2019.

Alifax now claims that the color of the CPS is irrelevant. Pl.'s Opp'n to Def. Alcor Sci. Inc.'s Renewed Motion for J. as a Matter of Law ("Opp'n to JMOL") 6-7, ECF No. 313. That cannot be. Alifax's asserted trade secret was not the use of any plastic CPS in an automated ESR analyzer. It was the use of a plastic CPS that was "transparent" and made from a block of "clear acrylic." These are the particular features Alifax used to

distinguish its trade secret from general industry knowledge. Furthermore, Alifax contends that this information constituted a "combination" trade secret comprised of public domain elements. See Opp'n to JMOL 7; Pl. Alifax Holding SpA's Opp'n to Def. Alcor Sci. Inc.'s Mot. for a New Trial, or in the Alternative, for Remittitur ("Opp'n to New Trial") 6, ECF No. 314. For such information to be protectable, the "unified process" resulting from the asserted combination must "afford[] a competitive advantage." Imperial Chem. Indus. Ltd. v. Natl. Distillers & Chem. Corp., 342 F.2d 737, 742 (2d Cir. 1965). In other words, the elements of the combination trade secret must together create independent economic value. See, e.g., Electro-Craft Corp. v. Controlled Motion, Inc., 332 N.W.2d 890, 900 (Minn. 1983) (explaining that independent economic value element of UTSA "carries forward the common law requirement of competitive advantage"); Champion Foodservice, LLC v. Vista Food Exch., Inc., No. 1:13-CV-1195, 2016 WL 4468001, *12 (N.D. Ohio August 24, 2016) (granting summary judgment as plaintiff "advanced no evidence as to how the unique combination of the database files—taken as a whole—constitutes information not readily available to the public or within the industry, or how this unified combination of information provides Champion with a competitive economic advantage within the industry.")

Here, evidence of an essential element of the "unique combination" claimed by Alifax throughout this litigation was missing: the clear reading cell. The substance of Alifax's evidence from its case in chief relates exclusively to the development of a CPS made from "black" or "dark" material. Although Frappa's May 2008 email makes passing mention of a clear reading cell, the same passage refers to covering such a cell in "a completely opaque layer of varnish or a thin layer of black plastic material . . .". See Trial Ex. 421. This speck of evidence cannot, by itself, support the conclusion that Alifax was developing a clear reading cell for use in its ESR analyzers during the relevant time period.

This was not the only flaw in Alifax's case concerning the CPS-related trade secret. It is well-established that information that a party can acquire through "normal business channels" is not protectable. APG, Inc. v. MCI Telecomm. Corp., 436 F.3d 294, 307 (1st Cir. 2006) (affirming summary judgment for defendant on misappropriation claim holding disputed information was "obtainable within normal business channels," even if acquired by other means); Rego Displays, Inc. v. Fournier, 379 A.2d 1098, 1101 (R.I. 1977) (stating that information comprises a trade secret only if it "could not be obtained through public channels"). Thus, accepting for argument's sake that the opacity of the CPS was immaterial, Alifax still had to prove that its CPS-related trade secret was not "generally known" or "readily ascertainable by proper means"

by persons who could "obtain economic value from its disclosure or use." R.I. Gen. Laws § 6-41-1(4)(i); see also Giasson Aerospace Sci., Inc. v. RCO Engrg., Inc., 680 F. Supp. 2d 830, 841 (E.D. Mich. 2010) ("There can be no trade secret where the 'secret' is readily ascertainable from the public domain."); MicroStrategy Inc. v. Business Objects, S.A., 331 F. Supp. 2d 396, 416-17 (E.D. Va. 2004) ("If a competitor could easily discover the information legitimately, the inference is that the information was either essentially 'public' or is of de minimus economic value.").

Again, the Court must consider the evidence from Alifax's case in chief in the light most favorable to the verdict. Alifax elicited testimony that its employees worked on the Mecca project for several years. See Trial Tr. vol. 2, 41:16-24. Evidence was introduced that Alifax worked with a third-party vendor to produce tangible versions of the CPS component. See id. at 41:11-15; Trial Ex. 421. The jury also heard some testimony concerning measures intended to maintain the confidentiality of Alifax's company data, including that preserving confidentiality was discussed at Alifax R&D meetings; the company used generic email footers noting that communications were confidential; and that Alifax provided devices for holding company data, which was not to be stored on personal devices.¹¹ See Trial Tr. vol. 2, 31:3-17, 35:2-24; Trial Ex. 20.

¹¹ The parties strongly dispute the import of Alifax's March 2009 non-disclosure agreement ("NDA") with its CPS manufacturer,

Alifax's evidence was bereft of additional proof concerning ascertainability. There was no evidence quantifying the man-hours or monies expended on developing a CPS component.¹² There was no evidence about the hardware found in ESR analyzers or similar diagnostic instruments produced by companies other than Alifax or Alcor. There was no evidence about the state of knowledge in the blood-testing or clinical instrument industries concerning technologies for measuring optical density.¹³ Indeed, Alifax cites

IDEX. The Court finds that no juror could have reasonably relied on this information as probative of any reasonable effort to maintain the confidentiality of CPS-related information. The record shows, at most, that Alifax sent CPS-related specifications to IDEX almost a year before it executed an NDA and in the absence of any circumstances indicating that IDEX was obliged to maintain their confidentiality. See Trial Tr. vol. 2, 41:9-24, 108:6-10; Trial Exhibits 421, 422; see also Web Commc'ns Group, Inc. v. Gateway 2000, Inc., 889 F. Supp. 316, 320 (N.D. Ill. 1995) (finding no reasonable steps to maintain confidentiality where plaintiff disclosed allegedly confidential invention without designating documents confidential or executing a confidentiality agreement).

¹² Dr. Galiano testified that Alifax reinvests 10% of its annual profits into research and development activities, but provided no details concerning this project. See Trial Tr. vol. 6, 65:24-66:1. The Mecca project's slow progress was also attributed to Frappa's limited English proficiency and his responsibility for "other things." See Trial Tr. vol. 2, 41:24-42:6.

¹³ Alifax has noted that, on cross-examination during Alcor's case, Frappa suggested that an "off-the-shelf" CPS would not work in an ESR analyzer. This testimony, however, does not explain whether using a plastic CPS in an ESR analyzer was "readily ascertainable" in the industry. Furthermore, unlike at summary judgment, there was no specific evidence at trial that its application of a CPS was novel or new in the industry. See Alifax Holding SpA v. Alcor Sci. Inc., No. CV 14-440 WES, slip op. at 19-20 (D.R.I. Mar. 26, 2019).

nothing to support the proposition in its briefing that, before Frappa joined Alcor, "no other supplier of any type of ESR analyzer had developed or used a clear plastic CPS." Opp'n to New Trial 8. Even if the Court credited that statement, "[s]imply being the first or only one to use certain information does not in and of itself transform otherwise general knowledge into a trade secret." TGC Corp. v. HTM Sports, B.V., 896 F. Supp. 751, 757 (E.D. Tenn. 1995).

The ruling in Pope v. Alberto-Culver Co., 694 N.E.2d 615, 617 (Ill. App. Ct. 1998) is also instructive.¹⁴ In Pope, an Illinois appellate court affirmed judgment for the defendant on a trade secret misappropriation claim. Id. at 619. The plaintiff's alleged trade secret consisted of a lye-based hair relaxer in a squeezable tube that a consumer could use to spread the product. Id. at 616. The Court affirmed summary judgment, agreeing that plaintiff failed to produce evidence that this combination trade secret was not comprised of information "generally known or understood" within the relevant industry. Id. at 617. "[T]he key to secrecy under the Act," the Court held, "is the ease with which information can be developed." Id. at 619. The Pope plaintiff's asserted trade secret "could have been easily and cheaply

¹⁴ The statutory language of the Illinois Trade Secrets Act is substantially similar to RIUTSA's terms.

discovered utilizing existing technology." Id. at 618; see also Buffets, Inc. v. Klinke, 73 F.3d 965, 968 (9th Cir. 1996) (recipes that were "so obvious that very little effort would be required to 'discover' them" are not trade secrets).

Here, Alifax was obliged to prove that a "clear, plastic [CPS] in an automated ESR analyzer" qualified as a trade secret. As a court from the District of Kansas explained in Bradbury Co., Inc. v. Teissier-duCros, "[t]here is a glaring lack of detail showing any facts about how [the CPS-related trade secret] was not readily ascertainable by the industry." 413 F. Supp. 2d 1209, 1227 (D. Kan. 2006) (finding plaintiff failed to meet burden of proving a protectable trade secret at summary judgment). There was no testimony or documentary proof concerning how difficult, relative to the state of industry knowledge, it would be to develop an ESR analyzer that measured optical density using a plastic CPS. Alcor's generalized development timeline is, in and of itself, unavailing. See Trident Prods. & Servs., LLC v. Canadian Soiless Wholesale, Ltd., 859 F. Supp. 2d 771, 779 (E.D. Va. 2012) ("[E]ven if a company has expended significant resources to develop a trade secret on its own, it cannot prevail . . . if the barrier to obtaining that trade secret is quite low in reality."). Thus, for at least these two reasons, the jury's verdict with respect to misappropriation of a "clear, plastic CPS" under Count II must be vacated.

2. The Defendants Would Be Entitled to A New Trial On Liability for Misappropriation of the CPS-Related Trade Secret.

The Court would grant a new trial on the Defendants' liability for misappropriating the CPS-related trade secret even absent these evidentiary shortcomings. Upon reflection, the Court concludes that Trial Exhibit 136 - a prototype black reading cell introduced by Alifax and produced on the eve of trial - should not have been admitted into evidence. Alifax's use of this tangible evidence unfairly prejudiced Alcor and, by itself, justifies a new trial.

Alifax first attempted to introduce Trial Exhibit 136 through Duic. See generally Trial Tr. vol. 2, 47-53. Alcor objected based on lack of disclosure. Id. at 48-49. The Court initially deferred ruling and gave Alifax an opportunity to lay additional foundation. Id. at 51:5-11. Duic testified that he could not recall what prototypes Frappa worked with and Alifax abandoned its attempt to admit the exhibit at that time. Id. at 53.

Alifax tried again four days later while examining Dr. Galiano. See Trial Tr. vol. 6, 77-82. Dr. Galiano identified the object as "the device called MECCA." Id. 78:11. Alcor renewed its objection. Id. at 78:3-5. Counsel for Alifax explained that the object "is simply the plastic reading cell which is one of our trade secret components" and that it was "introduced in 2014" into

Alifax's products. Id. at 79:18-80:2.¹⁵ Counsel also explained that (1) Alcor had not specifically requested this object in discovery, and (2) Alcor had an Alifax machine in their office, which when combined with Frappa's knowledge, obviated any prejudice. Id. at 80:24-81:9. It was undisputed that Alifax had produced the object at the final pretrial conference and that Alcor's counsel photographed it. Trial Tr. vol. 2, 49:11-50:4. The Court ruled that the exhibit was admissible for the reasons stated by Alifax's counsel. Trial Tr. vol. 6, 82:10-13.

The Court should have sustained Alcor's objection. Alcor's purported failure to target a tangible version of the disputed reading cell in its discovery requests is irrelevant. Rule 26 requires a party to disclose "a copy . . . of all documents, electronically stored information, and tangible things that the disclosing party has in its possession, custody, or control and may use to support its claims or defenses, unless the use would be solely for impeachment." Fed. R. Civ. P. 26(a)(1)(A)(ii) (emphasis added). A party's initial disclosures must be made "without awaiting a discovery request," Fed. R. Civ. P. 26(a)(1)(A), and must be supplemented "in a timely manner" if the response is materially

¹⁵ Regarding whether Trial Exhibit 136 reflected a component Frappa worked on at Sire, Dr. Galiano testified on cross-examination that he could not answer questions about "technical modifications" made to Alifax instruments. Id. at 88:10-12.

incomplete and the additional information has not been made known to the other parties. Fed. R. Civ. P. 26(e)(1)(A). If a party fails to provide material supplemental information, it may not use that information at trial "unless the failure was substantially justified or is harmless." Fed. R. Civ. P. 37(c)(1).

The physical properties of Alifax's CPS were always material to its trade secret misappropriation claim. The Court also has reason to doubt the contention that the substance of Trial Exhibit 136 was "made known" to the Defendants through their acquisition of one or more Alifax devices. Alifax's counsel represented that Alifax introduced the CPS represented by the exhibit into its machines in 2014. See Trial Tr. vol. 6, 79:24-25. But the deposition testimony of Alcor's CEO, Carlo Ruggeri, suggests that the Alifax devices Alcor acquired were from early 2012. See Ruggeri Dep. 162:1-22.¹⁶ Examining machines from that period would not have revealed the proffered exhibit's substance. If a tangible version of the CPS existed and Alifax intended to use it at trial, it should have produced it during discovery. It neither did so nor offered a substantial justification for its last-minute disclosure. See Fed. R. Civ. P. 37(c)(1). Moreover, when the Court admitted the prototype, it did not fully appreciate the incongruity

¹⁶ Alifax played part of this testimony for the jury during its case-in-chief.

between the proffered exhibit, the description of the asserted trade secret as a "clear" plastic block, and the complete dearth of evidence described above. With the benefit of 20/20 hindsight, the correct outcome dictated by these facts is more apparent.

The Court also concludes that Alifax's failure to disclose Trial Exhibit 136 was not harmless. In his summation, Alifax's counsel urged the jury (as he urges the Court post-trial) to infer misappropriation based on access and substantial similarity. See Trial Tr. vol. 9 49:25-51:10; 54:3-11; Pl.'s Opp'n to New Trial 12-13. He argued that the design for Alifax' CPS "evolved into the ultimate design . . . that's in evidence as Exhibit 136." Trial Tr. vol. 9, 46:18-24. He invited the jury to compare Trial Exhibit 136 and design specifications for Alcor's reading cell, Trial Exhibit 81, physically placing the tangible object over the drawings using the Court's document camera and achieving a compelling dramatic effect. Trial Tr. vol. 9, 50:17-51:9; 54:3-11. The Defendants, on the other hand, were hamstrung by their inability to investigate this object during discovery and challenge its significance. Such circumstances are fundamentally unfair. Thus, if the judgment for Alifax were not vacated, the Court would order a new trial on liability for the CPS-related trade secret. See Astro-Med, 2008 WL 4372727 at *1.

A judge must make snap judgments at trial that are guided by experience and instinct (and often based on imperfect

information). At other times, a judge is afforded time and space for effortful deliberation and reflection. To borrow an analogy offered by an observer of our profession: district judges sometimes act like tortoises; at other times, they must act like hares.¹⁷ Rule 59 provides a means for the tortoise to correct the hare's occasional wrong turns. This is one such occasion.

B. The Conversion Algorithm Containing Four Specific Constants

The Court has remarked on infirmities in Alifax's proof of trade secret misappropriation. See, e.g., Alifax Holding SpA v. Alcor Sci. Inc., No. CV 14-440 WES, slip op. at 19, 27 (D.R.I. Mar. 26, 2019). But a Rule 50 analysis is "weighted toward preservation of the jury verdict." Rodowicz v. Massachusetts Mut. Life Ins. Co., 279 F.3d 36, 41 (1st Cir. 2002). And after scrutinizing the trial record, the Court concludes that there was a legally sufficient basis to support the jury's verdict that the Defendants misappropriated Alifax's proprietary conversion algorithm.

While this conclusion forecloses a directed verdict for the Defendants, Alifax's victory is pyrrhic. The Court finds that, regarding liability, the clear weight of the credible evidence is

¹⁷ See Malcolm Gladwell, Episode 1: Puzzle Rush, Revisionist History (2019), at <http://revisionisthistory.com/seasons?selected=season-4>; Malcolm Gladwell, Episode 2: The Tortoise and the Hare, Revisionist History (2019), at <http://revisionisthistory.com/seasons?selected=season-4>.

inconsistent with the jury's verdict; regarding damages, Alifax's evidence of Alcor's gross revenues allegedly attributable to its misappropriation unfairly transgressed the boundaries of Rule 1006. Thus, a new trial is warranted.

1. Legally Sufficient Evidence Supported the Verdict that Alifax's Conversion Algorithm Was a Trade Secret.

The jury's finding that the conversion algorithm was a trade secret was reasonably supported by Alifax's evidence. The "golden standard" for determining ESR is known as the Westergren test. See Trial Tr. vol. 1, 82:2-5. This test is time consuming. A technician must mix the blood sample, fill a graduated pipet, wait an hour while the pipet remains stable, and visually determine the sedimentation of red blood cells from plasma. Id. at 82:15-83:16. An ESR analyzer automates this process. It provides rapid results by taking optical density measurements of a blood sample in just seconds. Id. at 111:8-112:1. These values can be correlated to the results from hour-long Westergren tests. Id. Converting the optical data into a reliable, Westergren-correlated ESR value is a critical step in the process. See, e.g., id. 94:20-23.

Duic testified that there were "no mathematical models in the market" for correlating optical signal data to Westergren results when Alifax developed its conversion algorithm. Id. at 94:2-50. To create such a model, Alifax ran comparative tests with more than 40,000 blood samples over ten months. Id. at 93:17-21.

Dr. Enzo Breda (one of Alifax's co-founders) used these results to derive a conversion algorithm and to write the software used in Alifax's instruments. Id. at 94:2-12; Trial Tr. vol. 3, 105:18-106:4, Apr. 17, 2019. Breda's algorithm contained four easily identifiable numerical constants: 1000, 3, 2.2 and 1.9. Trial Tr. vol. 3, 105:24-106:4. Without a correlation algorithm, Alifax's instruments could not generate ESR results. See Trial Tr. vol. 1, 94:20-23; 105:5-17. The algorithm was not publicly known and not readily accessible to purchasers of Alifax instruments. See Trial Tr. vol. 3, 96:4-17. In addition, as further explained below, at least one rational interpretation of the evidence supports the conclusion that Alcor made some use of Alifax's algorithm, indicating that the information confers some competitive advantage. This is enough evidence (if barely) to find that Alifax's conversion algorithm containing four specific constants had independent economic value from not being generally known or readily ascertainable. See R.I. Gen. Laws § 6-41-1.

As for proof that Alifax undertook reasonable efforts to maintain the secrecy of its conversion algorithm, Duic testified that the confidentiality of company information was discussed at development meetings attended by Frappa. See Trial Tr. vol. 2, 31:18-32:8; Trial Ex. 20. Frappa attended a meeting at Alifax's Padova headquarters ten months before his departure where "[c]onfidentiality" was an identified agenda item. Trial Ex. 20;

see also Trial Tr. vol. 2, 32:6-8. Alifax provided Frappa with a company-owned laptop connected to its servers; downloading company information onto personal devices was prohibited. Id. at 35:2-24. Dr. Galiano testified that company communications were considered "confidential." Trial Tr. vol. 6, 98:6-15. Emails sent from Alifax accounts had a footer stating that, pursuant to Italian law, the email's contents were "confidential and intended solely for the use of the individual(s) to whom [the message] is addressed or otherwise directed." See, e.g., Trial Exs. 20, 34, 36. Lastly, it was established that Italy's national collective bargaining agreement ("NCBA") for the mechanical engineering industry imposed on Frappa as a matter of law "a post-employment duty of loyalty prohibiting the disclosure or use of Alifax's confidential or proprietary information in a manner that was likely to injure Alifax's business." See Alifax, 357 F.Supp.3d at 164.

This proof is paper-thin. Much of it is boilerplate stuff, and there was no evidence showing that Alifax maintains or enforces any written policies, procedures, or protocols touching on the confidentiality of its information. There was no evidence that Alifax ensured that Frappa (or any similarly situated employee) knew and understood the terms of the NCBA. It is frankly stunning to find that an international medical instrument company may rely largely on the wording of a generic email footer to ensure the confidentiality of its sensitive communications. Nevertheless,

Rule 50 does not require a party to weld an air-tight case. When viewed in the light most favorable to the verdict, this evidence was sufficient to support the jury's conclusion that Alifax's took reasonable efforts under the circumstances to maintain the secrecy of its conversion algorithm. Accordingly, there was enough proof to support the jury's verdict that the algorithm comprised a trade secret and to preclude judgment as a matter of law for the Defendants. See R.I. Gen. Laws § 6-41-1.

2. Legally Sufficient Evidence Supported the Verdict that the Defendants Willfully Misappropriated Alifax's Conversion Algorithm.

An accusation of theft lies at the heart of this dispute: Alifax's claim that the Defendants willfully misappropriated its secret formula for obtaining ESR values. At trial, the parties' set out conflicting narratives about how Alcor developed the iSED. Rule 50 does not permit the Court to decide who was the more persuasive storyteller. What matters is whether the trial evidence, when considered in the most flattering light, reasonably supports Alifax's rendition.

According to Alifax, Frappa had access to the company's confidential information, including its source code and proprietary conversion algorithm. Trial Tr. vol. 2, 19:13-20, 22:15-23:10; Trial Exs. 9, 11. In August 2011, Frappa met with Alcor's CEO, Carlo Ruggeri, in Rhode Island and discussed whether they might work together on an ESR-related project. Ruggeri Dep.

82:12-83:23, 90:1-25.¹⁸ He departed Alifax two months later and began working with Alcor almost immediately. See Trial Exs. 28, 39, 40.

Alcor had attempted to develop its own ESR analyzer with an Italian company, Hospitex, in 2010. See Trial Ex. 21. That effort was unsuccessful, but a changing tide accompanied Frappa's arrival. Within eight months of Frappa joining the team, Alcor debuted a new instrument at the June 2012 trade show for the American Association for Clinical Chemistry ("AACC"): the iSED. See Ruggeri Dep. 143:7-144:11; Trial Tr. vol. 5, 51:18-20; Trial Ex. 77.

Marketing materials announced that the instrument wasn't "from the future" but rather "here and now," touting the iSED's ability to achieve results in twenty seconds with "walk away processing" capabilities. Trial Ex. 77. Alcor beckoned potential customers to have a look - "Seeing is believing." Id. An August 6, 2012 internal Alcor email authored by its marketing director, Mark Ecker, states that the company "has a fully functional prototype for everyone to see and review." Trial Ex. 82.

Several months later, on November 6, 2012, Frappa "committed" iSED software source code titled "RECHON.C" to Alcor's Bitbucket repository. Trial Tr. vol. 5, 38:3-40:10; Trial Ex. 65. Source

¹⁸ Alifax played Carlo Ruggeri's deposition in part as part of its case-in-chief. See Fed. R. Civ. P. 32(a)(3).

code is comprised of commands written in a human-readable computer programming language. Bitbucket is the brand name of Alcor's source code version control repository. See Trial Tr. vol 3, 126:15-17; 128:6-7. Bitbucket shows when a user adds, deletes, or alters code; it tracks historical revisions in much the same way an author might keep an electronic file of redlined manuscript drafts. Id. at 126:21-23. A change to the source code is called a "commit" and reflects a snapshot of the code as of a certain date. Id. at 127:14-17.

The November 6 commit identified Frappa as its author and was titled "Version 1.00A." See Trial Tr. vol. 5, 41:5-7; Trial Ex. 65. On its face, the code appears to contain the numbers 1000, 3, 2.2 and 1.9.¹⁹ Trial Ex. 65, 3-4. Alifax also introduced evidence of a second source code file. See Trial Ex. 156; Trial Tr. vol. 3, 106:9-25. This code was not from a Bitbucket commit; it is code produced by Alcor outside the Bitbucket environment in a file folder with the title "1.04A." See id.; Trial Tr. vol. 3, 128:6-22; Trial Tr. vol. 4, 18:6-16, Apr. 18, 2019. Alifax's expert,

¹⁹ Alcor cites the testimony of Alcor's Chief Technology Officer, Peter Sacchetti, as additional support for this proposition. Sacchetti denied recognizing any conversion constants or algorithm in Exhibit 65 at trial. Alifax's counsel repeatedly confronted Sacchetti with prior inconsistent statements from his deposition, but such statements were admissible only to impeach Sacchetti's credibility; they could not be considered for their truth. See United States v. Hudson, 970 F.2d 948, 956 (1st Cir. 1992).

Dr. Bryan Bergeron, explained that the 1.04A file contained "math source code" for the iSED and identified Alifax's conversion algorithm (with its four constants) in that code. Trial Tr. vol. 3, 106:9-107:19. See also Trial Ex. 156 at ALCOR-0092342. He could not, however, pinpoint when the code contained in the 1.04A file was written or used because he never compared it to the historical Bitbucket record. Trial Tr. vol. 4, 21:5-14.

Several weeks after the November 6 commit, Frappa drafted an "iSED® Automated ESR Analyzer Correlation Test Protocol." Trial Ex. 92; Frappa Dep. 54:24-55:10. Frappa's protocol is dated November 29, 2012 and provides the specific steps for a correlation study designed to compare ESR values obtained from an iSED to those obtained from the Westergren method. Trial Ex. 92. The protocol specifically instructs that all instrument printouts should be saved and that results should be recorded on both handwritten charts and an Excel spreadsheet. Id. at 3. It also states that tests should be carried out with an iSED running "software version 1.00." Id. at 1.

Frappa made a "[f]irst commit" of the iSED "MATH.c" source code file to Bitbucket on December 1, 2012. Trial Ex. 470. Alcor began correlation testing using blood samples from Rhode Island's Fatima Hospital in late January 2013 to develop a conversion algorithm. See Trial Tr. vol. 5, 68:13-69:3, 70:8-73:14, Apr. 22, 2019; Trial Exs. 95, 97, 98. Frappa began revising the MATH.c

source code following these tests on January 28, 2013. Trial Ex. 470. Alcor refined its conversion algorithm over the ensuing months. It performed additional correlation testing in partnership with Rhode Island Hospital in June 2013. See Trial Tr. vol 5, 73:21-74:13; Trial Exs. 93, 104, 197. The outcome of this process was a fourth-degree polynomial equation. See Trial Tr. vol. 5, 82:8-83:2; Trial Exs. 104, 122; see also Trial Tr. vol. 8, 44:3-22, April 26, 2019. This equation comprises the conversion algorithm Alcor uses in its iSED instruments. Trial Tr. vol. 6, 16:12-22.

Alifax does not dispute that the Defendants developed a complex equation through correlative testing between late January and June 2013. It claims instead that the Defendants ran other tests between December 21, 2012 and January 9, 2013 with a device using its proprietary algorithm (not an equation developed from testing at Fatima and Rhode Island Hospital), achieved better results, and exploited its use of the algorithm to market its instrument. This theory requires a detailed unpacking.

Trial Exhibit 92 is the cornerstone of Alifax's argument. Attached to Frappa's protocol are results from a "Correlation Study for ESR - ISED vs. CLSI ESR."²⁰ This section of the exhibit is

²⁰ CLSI ESR is a reference to the "approved standard methodology (Westergren)." Trial Ex. 92.

written in a different font and style from the protocol but is consecutively Bates-numbered. The correlation study was conducted with "300 samples from healthy subjects" and includes a set of typewritten and handwritten worksheets with the same data. Id. The worksheets record ESR results for 311 samples using both the Westergren method and the iSED. Id. Each worksheet is signed by Frappa and has one of five handwritten dates: 12/21/12, 12/24/12, 1/03/13, 1/08/13 and 1/09/13. Id. at 5-24. Consistent with the protocol, the last pages of Trial Exhibit 92 contain printouts from an iSED. Id. at 25-31. The printouts identify the test instrument as number "00027" and have a filename that corresponds to a date, e.g., "File: 122112.XML." Id. at 25. The handwritten date on each page matches the instrument-generated date. Id. The second page of the attachment reports a correlation of "0.9569" between the iSED results and the Westergren tests. Id. at 2. (The Court refers to these results hereafter as the "Disputed Correlation Tests.")

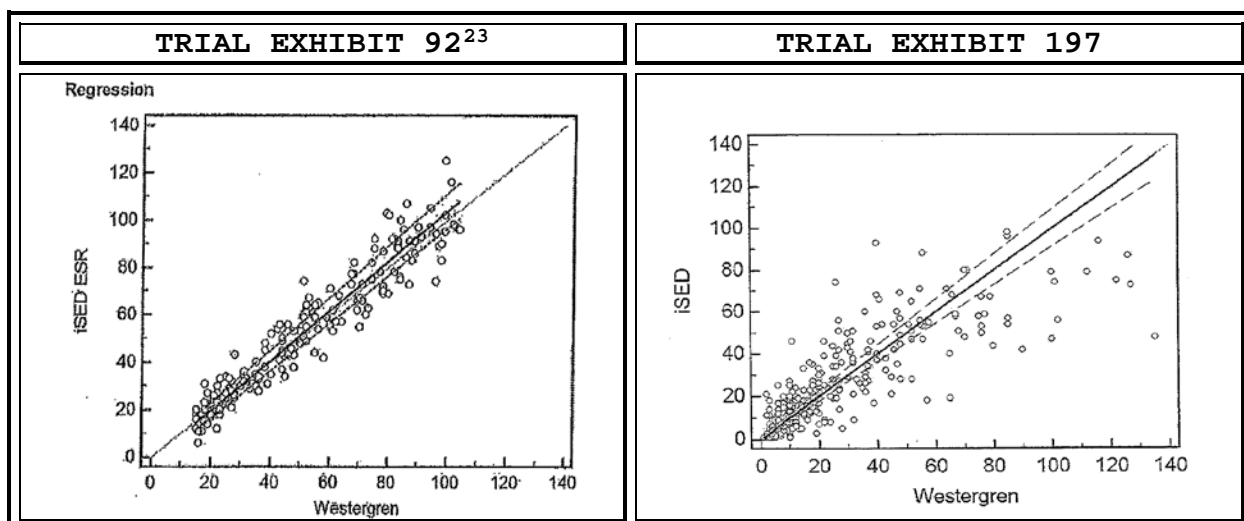
Alifax offered Frappa's deposition testimony about Trial Exhibit 92 during its case-in-chief. Frappa confirmed that the dates and signatures on the ESR worksheets were in his handwriting. Frappa Dep. 56:12-57:1. He confirmed that the printouts were from a prototype iSED and that the filenames correspond to the date the file was created. Id. at 57:11-13, 58:1-8, 63:25-64:6. He agreed that, based on the additional handwritten dates, the tests were

performed on the dates indicated. Id. at 58:21-21. He further agreed that a prototype instrument obtained actual ESR results from the blood samples. Id. at 59:22-60:3. In other words, the instrument obtained more than the raw optical measurements or the sample aggregation index²¹; it was performing a conversion. He could not recall the algorithm that the prototype used. Id. at 65:12-19.

Both Trial Exhibit 92 and the Rhode Island Hospital Report include scatter plots depicting the fit among the iSED-obtained ESR values and those from the Westergren tests. See Trial Exs. 92, 197. Trial Exhibit 92 expressly states that nearly a 96% correlation exists between the two values. See Trial Ex. 92 at 2. The Rhode Island Hospital Report does not provide such a calculation (known as an r-squared value). Regardless, a side-by-side comparison²² of the two scatter plots (both contained in admitted exhibits) reveals that the Disputed Correlation Tests appear to have a higher correlation:

²¹ For a more detailed explanation of how the device works, see Alifax Holding SpA v. Alcor Sci. Inc., No. CV 14-440 WES, slip op. at 4-5 (D.R.I. Mar. 26, 2019).

²² Alifax elicited testimony at trial concerning how a scatter plot demonstrates the strength of a correlation. See Trial Tr. vol. 5, 64:6-65:4, April 25, 2019. In layman's terms, the stronger the correlation, the closer the plotted data cluster to the line depicted on the graph. See id.



According to Alcor's Chief Technology Officer, Peter Sacchetti, the data in Trial Exhibit 92 were submitted to the U.S. Food and Drug Administration by Alcor to support a 2014 application made under the Clinical Laboratory Improvement Amendments, 42 U.S.C. § 263a ("CLIA").²⁴ Trial Tr. vol. 5, 93:25-94:8; Trial Ex. 116. The data was used to respond to the application reviewer's request for the comparison studies verifying Alcor's claim that the iSED

²³ Trial Exhibit 92 contains two scatter plots that are substantially similar. The graph depicted here limits the range to 15 to 105 mm/h, whereas the other graph plots all data.

²⁴ There was unrebutted evidence that government clearance was not necessary to sell the iSED. See, e.g., Trial Tr. vol. 6, 33:3-10; Trial Tr. vol. 7, 12:22-24, 13:12-15; Trial Ex. 94. The CLIA classification level (e.g., "moderately complex" or "highly complex") merely governs how a purchasing laboratory operates the instrument in question. Trial Tr. vol. 6, 33:3-10.

produces twenty-second ESR results correlated to Westergren values. See Trial Ex. 114 at ALCOR-0072693.

Alifax constructs the following argument to show misappropriation by improper use based on this evidence:

- Trial Exhibit 92 shows that Alcor had a functioning prototype iSED no later than December 21, 2012. Frappa's protocol called for the use of an iSED, and whatever prototype he used to conduct the Disputed Correlation Tests generated actual ESR results with a 96% correlation to the industry standard Westergren method.
- Alcor did not begin writing its own conversion algorithm until January 28, 2013. If a prototype iSED was obtaining ESR values before that date, it must have been using some other conversion algorithm.
- Frappa knew Alifax's conversion algorithm and incorporated it into Alcor code for some purpose prior to December 21, 2012. This is supported by evidence that versions 1.00A and 1.04A of Alcor's source code (at least one of which predates the Disputed Correlation Tests) contained Alifax's conversion algorithm and constants.

The jury could have made several reasonable inferences from this evidence. First, because Alifax's algorithm was the only algorithm Alcor had before January 28, 2012, the Defendants must have used it to obtain results from the iSED during the Disputed Correlation Tests. Alifax argued that Alcor submitted the Disputed Correlation Tests to support its 2014 CLIA application because they appeared to have a stronger correlation to the Westergren method than the June 2013 Rhode Island Hospital tests. Furthermore, Alifax argues that (by working backwards from December 2012) the jury could infer

that Alcor could only have made its marketing claims at the 2012 AACC trade show as well as in its August 6, 2012 email (the gist of which was that the company presently had a functioning instrument) if it was already using Alifax's proprietary information.²⁵

These arguments are circumstantial to be sure. That alone is unremarkable. See, e.g., Pioneer Hi-Bred Int'l. v. Holden Found. Seeds, Inc., 35 F.3d 1226, 1239 (8th Cir.1994) ("Wrongful taking of a trade secret can be found based on circumstantial evidence." (quoting Roger M. Milgrim, Trade Secrets § 15.01[1], at 15-18 n. 10 (1993) (collecting cases)); RKI, Inc. v. Grimes, 177 F. Supp. 2d 859, 876 (N.D. Ill. 2001) ("Because direct evidence of theft and use of trade secrets is often not available, the plaintiff can rely on circumstantial evidence to prove misappropriation by drawing inferences from perhaps ambiguous circumstantial evidence.")). The evidence confirms Alifax's story, however, only if it receives the benefit of every reasonable inference. Rule 50 requires such indulgences. The Court therefore agrees that the jury's misappropriation verdict is supported by a rational interpretation of Alifax's evidence. See Astro-Med, 591 F.3d at 18-19 (affirming denial of Rule 50 motion as, among other reasons, there "is a logical inference that a competitor who hires away a rival's

²⁵ This latter argument was plainly the basis for the jury's award of damages on Count II, the propriety of which is discussed further below.

valued employee with access to inside information has done so in order to use that inside information to compete with the rival . . . "); GlobeRanger Corp. v. Software AG USA, Inc., No. 3:11-CV-0403-B, 2015 WL 3648577, *13 (N.D. Tex. June 11, 2015) (denying Rule 50 motion as evidence showed defendant "relied on [plaintiff's technology] to develop its own." (citing Wellogix, Inc. v. Accenture, L.L.P., 716 F.3d 867, 877 (5th Cir. 2013) (denying judgment as a matter of law where documents suggested defendants had access to plaintiff's source code and were using its content))).

The Defendants focus tightly on the lack of evidence showing Alcor sold any device containing Alifax's conversion algorithm. See Renewed Mot. for JMOL at 23. Without a doubt, Alifax at one time focused its attention on the use of its conversion algorithm in production instruments sold to customers. See, e.g., Pl.'s Mem. of Law in Opp'n to Defs.' Mot. for Partial Summary J. 20-21, ECF No. 161-1. And as discussed throughout this opinion, it is also undeniable that Alifax's liability theories morphed throughout this litigation, including mid-trial. But as the foregoing summary shows, there is some proof that - if believed - supports finding that the Defendants had something more than a "dead end flirtation" with Alifax's confidential information. On-Line Techs., Inc. v. Perkin-Elmer Corp., 253 F.Supp.2d 313, 332 (D. Conn. 2003). To conclude otherwise, the Court would have to weigh

the evidence and reject Alifax's (and presumably the jury's) interpretation of Trial Exhibit 92 (which Alifax bolstered at trial with Frappa's own deposition) as well as Alcor's June and August 2012 statements. Rule 50's strict requirements prohibit this. Judgment as a matter of law on the issue of misappropriation of the algorithm is therefore inappropriate.

3. Legally Sufficient Evidence Supported The Jury's Award of "Head Start" Damages.

Alifax presented the jury with two alternative approaches for calculating unjust enrichment damages: (1) one year of profits reflecting the unfair head start Alcor obtained by launching the iSED at the 2012 AACC; or (2) the financial benefit Alcor has obtained from the iSED's "moderately complex" CLIA designation, which was supported in part by the Disputed Correlation Tests. See Trial Tr. vol. 12, 47:24-48:5, 49:18-21, 51:9-53:10, 55:4-9, May 2, 2019. The jury awarded Alifax \$6.5 million dollars. Jury Verdict: Phase II: Damages, ECF No. 299.

First, a procedural point. Alcor adequately preserved its Rule 50 arguments that Alifax's damages methodologies were not causally connected to misappropriation of the conversion algorithm. A party may only raise grounds under Rule 50(b) (a renewed motion for judgment as a matter of law) that it preserved in a Rule 50(a) motion at the close of the evidence. Parker v. Gerrish, 547 F.3d 1, 12 (1st Cir. 2008). Rule 50(a) does not, however,

require a party to detail its reasoning with "technical precision" mid-trial. Lynch v. City of Boston, 180 F.3d 1, 13 n.9 (1st Cir. 1999). All the rule requires is reasonable notice of the party's legal position. Id. (stating reasons should be stated "with sufficient certainty to apprise the court and opposing counsel of the movant's position with respect to the motion."); see also Western Union Co. v. MoneyGram Payment Sys., Inc., 626 F.3d 1361, 1367 (Fed. Cir. 2010)("[E]ven a cursory motion suffices . . . so long as it 'serves the purposes of Rule 50(a), i.e., to alert the court to the party's legal position and to put the opposing party on notice of the moving party's position as to the insufficiency of the evidence.'") quoting Blackboard, Inc. v. Desire2Learn, Inc., 574 F.3d 1371, 1379-1380 (Fed. Cir. 2009)).

The First Circuit's holding in Osorio v. One World Techs., Inc., 659 F.3d 81 (1st Cir. 2011), is an apt analog. In this product liability action, Osorio argued that defendant Ryobi's bench top table saw was unacceptably dangerous due to a defective design. Id. at 83. In its Rule 50(a) motion, Ryobi argued Osorio "failed to offer sufficient evidence . . . that the subject saw was not designed with reasonable care or that the saw was both defective and unreasonable dangerous." Id. at 87-8. In its renewed motion under Rule 50(b), Ryobi not only doubled down on its sufficiency attack, but also argued that Osorio's expert witness impermissibly advanced a "categorical liability" argument that

suggested all “low-cost portable benchtop table saws” were “inherently unsafe.” Id. at 87. Osorio argued on appeal that Ryobi had waived its argument regarding categorical liability.

The First Circuit disagreed. Ryobi’s objection to the expert’s testimony was a “corollary to [Ryobi’s] sufficiency argument” that “flesh[ed] out” the question of whether the plaintiff satisfied his burden of proof – an issue the court noted that Ryobi had contested at each stage of the litigation.” Id. at 88. Alcor, like Ryobi, made a distinct insufficiency argument in its Rule 50(a) motion: “Alifax did not satisfy its burden of proving Alcor’s gross sales attributable to the misappropriation . . . Alifax presented no evidence that [Alcor’s gross sales] are attributable to the misappropriated computer code trade secret. Demonstrating Alcor’s general gross sales is not sufficient.” Trial Tr. vol. 12, 10:7-20. Thus, as in Osorio, Alcor’s specific objections to Alifax’s CLIA designation and head-start calculations simply “flesh out” an insufficiency argument that Alcor pressed at every stage of this litigation. There was no waiver.²⁶

²⁶ Even if the Court had found that these objections were waived, it would nevertheless have granted a new trial. See 9B Charles Alan Wright & Arthur R. Miller, Federal Practice and Procedure § 2537 (3d ed. 2008).

Now to the meat of the issue. A plaintiff may recover under RIUTSA "both the actual loss caused by misappropriation and the unjust enrichment caused by misappropriation that is not taken into account in computing actual loss." R.I. Gen. Laws 6-41-3(a). "In lieu of damages measured by any other methods, the damages caused by misappropriation may be measured by imposition of liability for a reasonable royalty for a misappropriator's unauthorized disclosure or use of a trade secret." Id. A jury's damages award need only reflect a reasonable estimate based on a rational model. Abbey Med./Abbey Rents, Inc. v. Mignacca, 471 A.2d 189, 195 (R.I. 1984).

Here, Alifax sought only unjust enrichment damages. After hearing truncated arguments mid-trial, the Court adopted the burden-shifting framework set forth in the Restatement (Third) of Unfair Competition with respect to this theory.²⁷ The Restatement provides:

The general rules governing accountings of profits are applicable in trade secret actions. The plaintiff is entitled to recover the defendant's net profits. The plaintiff has the burden of establishing the defendant's sales; the defendant has the burden of establishing any portion of the sales not attributable to the trade secret and any expenses to be deducted in determining net profits.

²⁷ The Court made it abundantly clear to the parties that their dispute over whether to apply the Restatement's burden shifting framework was brought to the Court's attention at the last possible moment with unsatisfactory briefing and argument.

Restatement (Third): Unfair Competition § 45, cmt. f (Am. Law Inst. 2019). Nothing in the Restatement's framework relieved Alifax from its obligation to prove causation in the first instance. Id. ("The traditional form of restitutionary relief in an action for the appropriation of a trade secret is an accounting of the defendant's profits on sales attributable to the use of the trade secret.") (emphasis added); see also id. cmt. b. ("The plaintiff bears the burden of proving the fact and cause of any loss for which recovery is sought."); R.I. Gen. Laws § 6-41-3(a) ("Damages can include . . . the unjust enrichment caused by misappropriation"). The Court instructed the jury suitably. See Jury Instructions: Phase II: Damages 8-9, ECF No. 298.²⁸

The evidence supporting Alifax's argument that Alcor unjustly benefited from the iSED's CLIA designation was inadequate. Alifax presented practically no evidence about the CLIA designation process. Although it claims that Alcor obtained a "moderately complex" designation for the iSED, Alifax introduced almost no proof of that fact - no public records, no device specifications, no

²⁸ The Court instructed: "If you find that Alifax has proven that Alcor benefitted from using the computer code trade secret, you may award the monetary value you find has been proven by a preponderance of the evidence to be attributable to that benefit." Id. at 8. It also instructed: "Alifax must prove by a preponderance of the evidence Alcor's gross sales attributable to its misappropriation of the computer code trade secret." Id. at 9 (emphasis added).

testimony. Its best evidence was a statement in an undated draft iSED operator's manual. See Trial Exhibit 460. Even assuming this meagre statement sufficed, there was no evidence that FDA clearance or a particular CLIA designation was necessary to sell iSED instruments. Indeed, the record from Alifax's case-in-chief is at odds with its own position. See, e.g., Trial Tr. vol. 6, 33:3-10; Trial Ex. 94.

The strongest nail in the CLIA-based calculation coffin is the complete dearth of evidence about why customers purchased the iSED. Alifax offered no proof that a moderately complex designation drove sales in the clinical instrument industry. There was no evidence that a "moderately complex" designation led to even one sale of an iSED.²⁹ One statement from Ruggeri that one customer asked about the iSED's designation cannot sustain an inference of causation. See Trial Ex. 114 at ALCOR-0072694. It follows that any calculation of damages based on the iSED's purported CLIA designation would have been pure speculation on the part of the jury. See McLaughlin v. Moura, 754 A.2d 95, 98 (R.I. 2000)(holding that the causal connection between plaintiff's cause of action and damages "may not be based on conjecture or speculation").

²⁹ If anything, the evidence was to the contrary. For example, Ecker boasted about an "incredible" response from customers at the 2012 AACC trade show, which was two years before the iSED applied for a CLIA designation. See Trial Ex. 78.

But this conclusion does not end the Court's inquiry. If a party presents multiple damages calculations, an award may survive so long at least one of the alternatives has a sufficient evidentiary foundation. See Northpoint Tech., Ltd. v. MDS Am., Inc., 413 F.3d 1301, 1312 (Fed. Cir. 2005) ("[W]here there are two alternative factual theories which might support the verdict, the verdict will be upheld if there is sufficient evidence to support either theory[.]") quoting Baumler v. State Farm Mut. Auto. Ins., 493 F.2d 130, 134 (9th Cir.1974)); Bank of Am. Nat'l Trust & Savings Ass'n v. Hayden, 231 F.2d 595, 602-03 (9th Cir. 1956) (holding where the parties present alternative damages calculations, the verdict should be upheld if there is sufficient evidence in the record as to any calculation). The Court must therefore consider whether the evidence supports the proffered head start computation.

Alifax introduced evidence that the AACC trade show was a lucrative venue for launching new products, particularly diagnostic instruments like the iSED. See Trial Tr. vol. 6, 69:4-17. Ruggeri conceded that Alcor needed "to meet the deadline of having a working prototype" for this event. Ruggeri Dep. 135:8-13. "Time was [of] the essence," he said. Id. at 135:7-9. Frappa shared Ruggeri's concern. Just weeks before the show, he wrote to a collaborator about the time required to finish a circuit board component, explaining that "the project is very important" and

that "even a little delay should be a big problem. We cannot miss this deadline." Trial Ex. 67. As explained above, there was at least some evidence that Alcor succeed in creating a "fully functioning prototype" used to market the iSED by misappropriating Alifax's conversion algorithm.

Dr. Bergeron described the task of developing a conversion algorithm as a "hard problem" that would require a prototype instrument and "many experiments[] to collect data."³⁰ Trial Tr. vol. 3, 115:16-17, 116:3. He opined that it would "definitely take months" for Alcor to develop its own commercially viable algorithm. Id. 117:23-116:1. Alcor's development timeline for

³⁰ As the Court observed in its order excluding the trade secret misappropriation damages opinion of Christopher Bokhart, Dr. Bergeron's did not disclose an opinion that developing a conversion algorithm would take "months" in his report. Alifax Holding SpA v. Alcor Sci. Inc., 2019 WL 1930763, *4 n.11 (Apr. 30, 2019). The Court made its observation sua sponte. Alcor did not object to that testimony at trial; it chose to cross-examine Dr. Bergeron on his statement instead. Trial Tr. vol. 3, 115:23-116:9, 119:10-120:6. Indeed, Alcor has never moved to strike Dr. Bergeron's questionable testimony. The proper avenue to challenge this evidence would have been a contemporaneous trial objection, not post-trial briefing. See Fed. R. Evid. 103; Waitek v. Dalkon Shield Claimants Tr., 934 F. Supp. 1068, 1083 (N.D. Iowa 1996) ("[T]he trial court is not 'required to exercise its gatekeeping authority over expert testimony without an objection'"), aff'd, 114 F.3d 117 (8th Cir. 1997) (quoting McKnight By & Through Ludwig v. Johnson Controls, Inc., 36 F.3d 1396, 1407 (8th Cir.1994)). As Dr. Bergeron explained the basis for his testimony and Alcor had a fair opportunity for cross-examination, the Court does not find that this testimony "serious[ly] affected the fairness . . . of the judicial proceedings." Fed. R. Evid. 103(d); United States v. Gandia-Maysonet, 227 F.3d 1, 5 (1st Cir. 2000).

its fourth-degree polynomial equation - roughly five months - corroborates this conclusion. See § III.B.2, supra.

Extrapolating from these facts, Alifax argued that, but for Alcor's misappropriation, it would have taken several more months to develop a functional iSED prototype. Trial Tr. vol. 12, 55:14-22. Months of delay would have meant missing the 2012 AACC trade show; missing the trade show would have delayed the debut of a new instrument until 2013. Id. 46:18-47:5. Simply put, Alifax argues that a modest delay would have sparked a chain reaction. Thus, one year of profits attributable to its unfair head start was a rational measure of damages. See id. 49:18-21; 54:14-55:9. An estimated \$6.5 million in net profits from iSED-related sales during 2018 (a year in which Alcor would not have earned such revenues absent misappropriation) can be derived through simple arithmetic using the financial data from a spreadsheet created by Alcor and introduced through Alifax's only damages witness, Christopher Bokhart.³¹ See Trial Ex. 173; Trial Tr. vol. 11, 65:7-66:14; 68:22-70:17, May 1, 2019.

"[C]ausation can be shown from reasonable inferences drawn from circumstantial evidence." Melvin F. Jager, Trade Secret Law § 7:29 (2019); see also Cartel Asset Mgt. v. Ocwen Fin. Corp., 249

³¹ As the Court explains below, the Court should have more strictly cabined Bokhart's testimony, which in part warrants a new trial. More on that to come.

Fed. Appx. 63, 75 (10th Cir. 2007) ("A conclusion concerning causation may result from a fact-finder's "reasonable inferences from the circumstantial evidence presented."). Alifax's argument for head start damages is - like the rest of its case - thoroughly circumstantial. It is not, however, wholly unreasonable. The statements from Ruggeri and Frappa show an urgent desire to launch the iSED at the 2012 AACC. Dr. Bergeron's testimony and Alcor's own algorithm development timeline suggest that it would have taken more time than Alcor had available to create a conversion algorithm and claim it had a functioning device. A year-long delay is one outcome that may be reasonably inferred from the trial evidence.

To sum up, the Court concludes that there was legally sufficient evidence at trial to support the jury's verdict that Alifax's conversion algorithm with its four specific constants comprised a trade secret that was willfully misappropriated by the Defendants. The jury's award of \$6.5 million was a rational appraisal of Alcor's unjust enrichment. Accordingly, Alcor's Rule 50(b) motion with respect to liability for misappropriation of this trade secret must be denied.

4. The Verdict Finding Misappropriation of Alifax's Conversion Algorithm Is Against the Clear Weight of the Evidence, Warranting a New Trial.

A critical assumption underpins the jury's verdict: Alifax's algorithm was capable of producing highly accurate results in a non-Alifax device. The Defendants challenged this premise at every

turn. At trial, they relied on the testimony of embedded systems expert Daniel Smith.³² See generally Trial Tr. vol. 8, 21:12-17, 53-66. Smith's background included years of diverse experiences as an embedded systems engineer. He worked with or for numerous technology companies, taught several courses on developing embedded systems (including source code development), and had some expertise in designing medical devices. Id. at 14:7-19:12. His employment history included serving as the director of engineering for Tesla Electronics (where he was responsible for designing its vehicle's electronics and firmware) and as a lead engineer for Motorola. Id. at 16:25-18:12, 19:13-20:3. In the Court's opinion, these credentials made Smith's area of expertise a superior fit for this dispute.

Smith opined that Alifax's conversion algorithm and its four specific constants were, within a reasonable degree of engineering certainty, incapable of "produc[ing] accurate, meaningful ESR values in an iSED device[.]" Id. at 66:25. He designed a method to test his hypothesis. The June 2013 Rhode Island Hospital test data included the aggregation index (a value based on raw optical density data) for each blood sample. Id. at 58:1-7;

³² Smith defined such a system as "an electronic system with an embedded microprocessor that has a dedicated function." Trial Tr. vol. 8, 13:19-21. ESR analyzers satisfy these criteria. Id. at 14:3-5.

see Trial Ex. 484. This value is determined through the well-known, non-proprietary principles of syllectometry and is the salient input for an ESR analyzer's conversion algorithm. Trial Tr. vol. 3, 143:20-144:13. Smith's analysis compared the outputs generated by the respective algorithms of Alcor and Alifax when this aggregation data was used as a common input. Id. at 54:23-56:5. Put another way, Smith tested the accuracy of Alifax's claim that Alcor could have implanted its conversion algorithm into Alcor hardware and produced ESR values highly correlated to Westergren results.

Using the Microsoft Excel software program, he created a spreadsheet with formulas. See Trial Tr. 56:17-57:10, 61:5-15. Trial Ex. 505. For each sample, the entry included (1) the sample's iSED-generated aggregation index ("Integral iSED"); (2) an ESR value calculated using Alcor's conversion algorithm as of January 28, 2013 ("iSED ESR"); (3) an ESR value calculated using Alifax's proprietary algorithm ("ALIFAX ESR"); and (4) the sample's ESR value obtained from the traditional Westergren method ("WG"). See Trial Ex. 505; Trial Tr. vol. 8, at 62:25-66:2. The maximum acceptable ESR value produced by the Westergren method is 180 mm/h. Trial Tr. vol. 8, 66:5-8. Smith's results speak for themselves:

Sample**	Integral iSED	Int/1000-3	iSED ESR	WG	ALIFAX ESR
1	16424	13.424	16	20	774
2	30177	27.177	87	48	2654
3	20056	17.056	29	25	1166
4	27566	24.566	69	65	2215
5	21751	18.751	36	17	1375

Trial. Ex. 505. These first entries typify Smith's findings. When aggregation data is measured by an Alcor iSED but converted to an ESR value using Alifax's algorithm, the instrument yields worthless results. Id.; see also Trial Tr. vol. 8, 66:13-18. The instrument-generated values are in many entries an order of magnitude larger than the highest permissible Westergren value. See Trial Ex. 505. Smith concluded from this analysis that no meaningful results could be obtained if Alcor used Alifax's algorithm in an iSED. Id. at Trial Tr. vol. 8, 66:19-25. Conversion algorithms are "device-specific." Id. at 21:12-17.

Alifax failed to challenge this opinion in any serious way. Its cross-examination largely concentrated on the timeline of Alcor's code development and relied on files produced outside Alcor's version control repository. Both Smith and Dr. Bergeron agreed that information contained in such files could not be anchored to a point in time. Trial Tr. vol. 4, 20:21-14; vol. 8, at 92:24-9. To be clear: the Court is not choosing to credit Smith's opinion over Dr. Bergeron's. Alifax did not ask Dr. Bergeron (who watched Smith's testimony) or anyone else to provide a rebuttal opinion or critique Smith's methodology. In fact, on direct examination Dr.

Bergeron stated that he observed that Alifax did not employ the same constants consistently in different models of its instruments. Trial Tr. vol 3, at 124:2-20. He declined to identify changing hardware as the cause of these variations but acknowledged that "it [was] an assumption [he was] making . . . ". Id. at 124:23. Thus, even Dr. Bergeron appears to have assumed based on his considerable education, experience, and observations that conversion algorithms have some degree of device specificity.

Neither juries nor courts should casually dismiss potent and unrefuted scientific proof. Roma v. Thames River Specialties Co., 96 A. 169 (Conn. 1915) (holding a trial judge "would have failed in his duty" if he had not set aside the verdict when, among other things, "the laws of mechanics, as testified to and uncontradicted, tended to prove [the claimant's] story impossible"). Alifax argues - correctly - that the jury was free to reject Smith's testimony. See New Trial Opp'n 15. However, its apparent decision to do so absent any reasonable challenge to the basis for his opinions or an alternative explanation for his findings raises insuperable doubts about the verdict's soundness. See Venturelli v. Cincinnati, Inc., 850 F.2d 825, 833 (1st Cir. 1988) (stating a new trial may be ordered on appeal where verdict relies on evidence that "flies in the teeth of unimpeachable contradicting evidence and universal experience"); Kansas City Pub. Serv. Co. v. Shephard, 184 F.2d 945, 947 (10th Cir. 1950) ("Plaintiff cannot prevail . .

. if the evidence on which he relies is in irreconcilable conflict with immutable laws of physics or is wholly inconsistent with established and uncontroverted physical facts").

If conversion algorithms are device specific, Alifax's explanation of Trial Exhibit 92 breaks down. The record contains further corroborating evidence that Alifax's algorithm could not have been used to achieve those results. Sacchetti testified that Alcor assigned every iSED instrument a sequential serial number. See Trial Tr. vol. 4., 37:1-4; Trial Ex. 138. Serial numbers 00001, 00002, and 00003 were prototypes. Trial Ex. 138. The instrument printouts displaying ESR values attached to Frappa's protocol were generated by iSED number "00027." Trial Ex. 92. Alcor did not manufacture that instrument until June 2013, around the time Rhode Island Hospital was conducting its correlation tests. See Trial Tr. vol. 6, 38:22-25; Trial Ex. 138. There was also testimony that the date on the printouts reflects test instrument's internal clock, which may have been incorrectly set by Frappa when conducting the tests. See Frappa Dep. at 57:11-13, 63:25-64:6; Trial Tr. vol. 5 at 67:6-10, vol. 6 at 35:19-36:16. Consequently, Frappa's handwritten dates could reflect the printouts' filenames rather than when he ran the tests.

Like toppling dominos, these faltering arguments exacerbate other weaknesses in Alifax's proof. Alifax's interpretation of the phrase "fully functional prototype" in Ecker's August 6, 2012

internal email ignores relevant context. In the proceeding sentence, Ecker expressly states that while the iSED is "fast approaching final stages," it is "still in development." Trial Ex. 82. Consistent with Ecker's email, Ruggeri explained that Alcor "didn't wait" for its "final product" - i.e., a device that generated reliable ESR values - before laying the groundwork for the iSED's potential sales. Ruggeri Dep. at 144:15-20. So-called "premarketing" activities such as advertisements and sales calls began immediately after the 2012 AACC trade show. Id. 144:4-20. Alcor would not roll out production machines for at least six months. Id. at 144:4-7.

The statements from Ecker and Ruggeri are consistent with Frappa's trial testimony. Alcor's goal for the 2012 AACC trade show was to produce a prototype showing how easy the iSED was to use. Trial Tr. vol. 7, 60:21-23, Apr. 25, 2019. The prototype's software was designed to demonstrate only the loading, identification, mixing, and ejection of blood sample tubes. Id. 61:19-62:2. The tubes were empty; nothing was measured and a "dummy" ESR value was reported. Trial Tr. vol. 62:1-8. Alcor introduced a video of Frappa testing a prototype device one day before the show. Trial Ex. 73. The video corresponds to his description and shows Frappa using a prototype instrument simulating the end-user's experience with empty tubes and a randomly generated ESR value. See id.; see also Trial Tr. vol. 7, at 62:13-65:16.

Frappa's testimony and the video are consistent with Alcor's contemporaneous advertising copy, which emphasizes the iSED's "set it and forget it" features. See, e.g., Trial Ex. 82, 77, 79. None of these ads claim that the iSED obtains ESR values in a novel or noteworthy way.

The record of Alcor's development of the iSED's reading cell further undermines the reasonableness of any inference that Alcor used Alifax's algorithm for any purpose in or around June 2012. Alcor engaged with a Chinese injection mold manufacturer for six to eight months to perfect the design of its reading cell. See Trial Tr. vol. 8, 10:18-11:7, Apr. 26, 2019; Trial Ex. 96. Frappa's correspondence shows that Alcor did not even begin working with the manufacturer until mid-September 2012. Trial Ex. 96 at ALCOR-0073477. The company sent sample reading cells in January 2013. Id. at ALCOR-0073459. It is undisputed that the optical density measurements necessary to obtain an ESR value are made in the instrument's reading cell. See, e.g., Trial Tr. vol. 3, at 34:2-18. If Alcor's reading cell development did not even begin until September 2012, it is unreasonable to infer that it could make any use of Alifax's conversion algorithm three months earlier.

One more omission is worth noting. The parties repeatedly clashed over the disclosure of their respective source code files. Alifax's expert had access to Alcor's Bitbucket repository as well

as additional files. Trial Tr. vol. 4, 17:6-18:8. And yet, "Version 1.0" of Alcor's source code remains a mystery. This is the code referenced in Frappa's protocol attached to the Disputed Correlation Tests. See Trial Ex. 92. None of the evidence Alifax identified as code containing Alifax's conversion algorithm - Version 1.00A from November 6, 2012 and the code in a file titled 1.04A - has that designation. See Trial Exs. 65, 156.

They jury's verdict that the Defendants misappropriated Alifax's algorithm and thereby obtained a one-year head start in the market relies on extensive, inference-driven reverse engineering from a wafer thin factual. A rational fact finder could reach the same result as the jury. Nonetheless, achieving that outcome requires rejecting powerful expert testimony and a motherload of contrary evidence. These exceptional circumstances persuade the Court to excise its discretion under Rule 59 to order a new trial concerning whether the Defendants willfully misappropriated Alifax's proprietary conversion algorithm in violation of RIUTSA.

5. A New Trial On Damages Is Necessary To Remedy Unfair Prejudice.

A new trial would be required on damages even if the jury's verdict on liability for misappropriation of the conversion algorithm survived.

Christopher Bokhart served as Alifax's sole witness during the trial's damages phase. Alifax originally identified Bokhart

as an expert who would opine as to damages attributable to each of its legal claims. In a series of rulings, however, the Court excluded all of Bokhart's opinions. See generally Alifax Holding SpA v. Alcor Sci. Inc., 2019 WL 1930763, *1 (Apr. 30, 2019); Alifax Holding SPA v. ALCOR Sci. Inc., 2019 WL 1579503, *1 (Apr. 12, 2019). The Court issued its final ruling mid-trial. The Court nonetheless understood that Bokhart reviewed Alcor's financial information in the course of preparing his opinions. With the intent of encouraging both practicality and fairness, the Court permitted Alifax (over the Defendants' objection) to call Bokhart pursuant to Rule 1006 of the Federal Rules of Civil Procedure to testify as a summary fact witness concerning Alcor's iSED-related gross revenues. Trial Tr. vol. 11, at 20:11-22, 33:10-25. The Court's ruling neither allowed nor intended to allow Bokhart to provide the jury with any opinion evidence. As set forth above, the jury returned an award that closely parallel's Alifax's theory of head start damages based on his testimony. See § III.B.3, supra.

Under Rule 1006, a party may "use a summary . . . to prove the content of voluminous writings, recordings, or photographs that cannot be conveniently examined in court." The summary may be comprised of a writing or witness testimony. See United States v. Casas, 356 F.3d 104, 119 (1st Cir. 2004). Regardless of whether such evidence is offered by an expert or a lay witness, Rule 1006 is not a backdoor for admitting otherwise impermissible opinions.

See Fagiola v. Natl. Gypsum Co. AC & S., 906 F.2d 53, 57 (2d Cir.1990) ("A summary must of course be based on foundation testimony connecting it with the underlying evidence summarized, and must be based upon and fairly represent competent evidence already before the jury..."); United States v. Radseck, 718 F.2d 233, 239 (7th Cir.1983) ("The nature of a summary witness's testimony requires that he draw conclusions based upon the evidence presented at trial."). Hence, First Circuit has explained that "the key to admissibility is that the summary witness's testimony does no more than analyze facts already introduced into evidence . . . ". United States v. Stierhoff, 549 F.3d 19, 28 (1st Cir. 2008) (emphasis added).

Alcor made vociferous objections to Bokhart testifying at trial. See, e.g., Trial Tr. vol. 11, 20:23-14. Alcor argued at that time (as it argues now) that Bokhart's testimony should have been excluded. See Mot. for New Trial 38-39, 43-44. Again, with the benefit of hindsight and a close review of testimony, the Court concludes that those objections should have been sustained. Bokhart's knowledge of facts concerning Alcor's revenues was too closely entwined with his excluded expert opinion to be cleanly dissected and presented under Rule 1006.

First, the documents and materials Bokhart purported to summarize were not already "competent evidence already before the jury." Radseck, 718 F.2d at 239; see also Stierhoff, 549 F.3d at

28. He testified with candor that his "understanding" of Alcor's iSED-related revenues were based on "thousands of documents," including Alifax and Alcor business records, marketing materials, business proposals, and financial statements. Trial Tr. vol. 11, at 45:17-20. He read "depositions of various employees of both companies." Id. at 23-24. And he agreed that his testimony concerning "the revenues and profits" Alcor obtained from iSED analyzers was based on his review of all of these materials and "discussions with various persons who are on both sides," including Alifax CEO Paulo Galiano. Id. 43:21-44:8. Just one of these primary sources was put before the jury: Trial Exhibit 173, a copy of an Alcor financial statement.³³ See Trial Ex. 173; Trial Tr. vol. 11, at 63:3-16. A basic prerequisite of Rule 1006 was therefore unsatisfied.

Second, Bokhart's testimony necessarily reflected the application of his financial and accounting expertise to interpret the evidence. This was impermissible. For example, he explained that Alcor three or four financial statements that "didn't always agree" and that there were "inconsistencies from document to document . . . ". Trial Tr. vol. 11, at 44:9-17. He also testified that sales numbers "only give[] part of the picture. You have to

³³ Trial Exhibit 198 was also introduced through Bokhart but was comprised of an attachment to Bokhart's expert report summarizing his findings.

understand what that item is . . . that's where the review and understanding of the underlying business documents come into play in interpreting financial statements." Id. at 44:18-23. He came to his "understanding" based on all his "work in in this litigation," id. at 50:19. That is, through his work as an expert.

Alifax's evidence about convoyed sales illustrates the Court's concern. Bokhart offered testimony about objects called "test cards." He told the jury these were items "used to make the iSED operational," thus the revenues they generated should be considered iSED-related. See id. at 50:9-22, 64:22-65:1. Test-card related revenues were "close to four million [dollars]." Id. at 67:24-68:4. He provided similar evidence regarding "diagnostic services." See, e.g., id. at 50:18-51:5, 57:4-10, 64:22-65:1, 68:9-11. At the time of Bokhart's testimony, however, there was no evidence from any other witness about test cards, diagnostic services or any other ancillary products that allegedly generated iSED-related revenues. None of this testimony was permissible within the strict confines of Rule 1006.³⁴

³⁴ Although Alcor argues at length about excluding Bokhart's testimony as improper lay opinion, Rule 701 was never the basis for the Court's ruling and would provide no support for allowing this evidence. See A.J. Amer Agency, Inc. v. Astonish Results, LLC, C.A. No. 12-351 S, 2014 WL 3496964 at *22 (D.R.I. July 11, 2014) (stating a lay witness may testify under Rule 701 regarding a party's financial information "based on the witness's own perceptions and knowledge and participation in the day-to-day affairs of the business.").

The Seventh Circuit has recognized that in tax evasion prosecutions "the line between summary testimony and expert testimony is indistinct." United States v. Pree, 408 F.3d 855, 869 (7th Cir. 2005). The Court has found no binding precedent suggesting that such hybrid testimony is permissible in a different context. It will not expand this doctrine here. See United States v. McElroy, 587 F.3d 73, 82 (1st Cir. 2009) (urging "caution" with summary witness testimony and stating "such witnesses are allowed only in limited situations"). Bokhart's testimony exceeded the scope permitted by Rule 1006, unfairly prejudicing Alcor.³⁵ Permitting the jury's damages award to stand would constitute a miscarriage of justice. Therefore, it must be vacated in favor of a new trial.

IV. Conclusion

For the foregoing reasons, Alcor's Renewed Motion for Judgment As A Matter of Law (ECF No. 304) is GRANTED IN PART AND DENIED IN PART. Judgment as a matter of law shall enter for the Defendants on Count II regarding the claim of "[u]sing a clear, plastic capillary photometer sensor ("CPS") in an automated ESR analyzer" in violation of the Rhode Island Uniform Trade Secrets Act ("RIUTSA"),

³⁵ The Court is neither intending to suggest nor has any reason to believe that either Bokhart or Alifax's counsel intentionally expanded the scope of his testimony. The fog surrounding this issue was thick and the boundary was less than obvious.

R.I. Gen. Laws § 6-41-1 et seq. In all other respects, the motion is DENIED.

Alcor's Motion for a New Trial, Or In the Alternative, For Remittitur (ECF No. 303) is GRANTED IN PART AND DENIED IN PART. If judgment is not entered for the Defendants with respect to the CPS-related trade secret, the Court hereby provisionally orders a new trial with respect to that allegation. The Court furthermore orders a new trial regarding the Defendants' liability for allegedly misappropriating Alifax's proprietary conversion algorithm and damages attributable to that alleged harm under RIUTSA. In all other respects, the motion is DENIED.

In as much as a new trial is required with respect to the claim of misappropriation of Alifax's secret conversion algorithm, the case will be returned to the trial calendar. Final judgment will not enter until all claims are decided.

IT IS SO ORDERED.

A handwritten signature in black ink, appearing to read "WESMITH", written over a horizontal line.

William E. Smith
Chief Judge
Date: September 5, 2019